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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,744	08/30/2001	Charles A. Howland	W0490/7028 RJP	8554

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EXAMINER

PIERCE, JEREMY R

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 08/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/943,744

Applicant(s)

HOWLAND, CHARLES A.

Examiner

Jeremy R. Pierce

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 138-201 is/are pending in the application.
- 4a) Of the above claim(s) 199-201 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 138-198 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 138-198, drawn to a woven article, classified in class 442, subclass 199.
 - II. Claims 199-201, drawn to a method of forming a fiber bundle, classified in class 57, subclass various.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the article as claimed, can be made from fiber bundles made without the processes that are disclosed in claims 199-201.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Vernon Maine on August 6, 2002 a provisional election was made with traverse to prosecute the invention of Group I, claims 138-198. Affirmation of this election must be made by applicant in replying to

this Office action. Claims 199-201 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Drawings

5. This application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 166, 175, and 194 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the

remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claims 166 and 194 recite the broad recitation "a primary twist multiplier of at least about 2 to at least about 5", and the claim also recites "preferably at least about 4", which is the narrower statement of the range/limitation. Claim 175 discloses two different denier ranges for the second fiber type.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 138-141, 147-191, and 194-198 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fels et al. (U.S. Patent No. 5,514,457) in view of Howland (U.S. Patent No. 5,565,264).

Fels et al. disclose a fiber bundle comprising core fiber of high strength fiber, such as Twaron (column 3, lines 28-35) and dyeable sheath fiber made of cotton, polyester, polyamide, or polyacrylonitrile (column 3, lines 58-65) that is useful in making protective clothing. Fels et al. does not disclose the round packed cover factor of the fabric, but does state that a high-density weave is most desirable (column 7, lines 38-

46). Howland teaches densely woven fabrics useful in the manufacture of protective clothing (abstract). Howland does not disclose a "round packed cover factor" of 75% on the fill yarn and 26% on the warp yarn. However, "round packed cover factor" is only an alternative method for expressing the cover of a fabric. Since Howland already disclose densely woven fabrics, with a cover factor of up to 140% (column 4, line 59), the Examiner will assume that this cover value is in line with the "round packed cover factor" that the Applicant now claims. If not, it would have been obvious to a person having ordinary skill in the art to provide a fabric with the "round packed cover factor" that is claimed in claims 138-140, since doing so would simply be optimizing the density of the weave to provide a fabric with a desired penetration resistance. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). With regard to claim 141, all yarns would comprise fibers of the first type and fibers of the second type, since the yarns of Fels et al. are fiber bundles. With regard to claim 147, Fels et al. do not specifically teach that the high strength core fibers have a tensile breaking strength of at least 10 g/Denier. However, the Examiner notes that Fels et al. disclose core material that is known to possess the strength required by Applicant's limitation, and the scope of Fels et al. is in the art of protective clothing, which normally provides fibers with a breaking strength of at least 10 g/Denier. The Examiner asserts that the limitation of tensile breaking strength would be inherent to the material disclosed by Fels et al. If not, then it would have been obvious to a person of ordinary skill in the art to create the article of Fels et al. with core fibers having a tensile strength of at least 10 g/Denier in

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order to create a protective garment with sufficient strength for puncture resistance.

With regard to claim 148, Fels et al. disclose using Twaron (column 3, line 32). With regard to claims 149, 163, and 172, Fels et al. do not disclose that two different fiber types having high strength need to be present in the fiber bundle. It would have been obvious to one having ordinary skill in the art to provide two different high-strength fibers in the fiber bundles of Fels et al. in order to create a fiber bundle with enhanced strength and diverse properties. With regard to claims 150 and 151, the second fiber type can be made from polyester, polyamide, or cotton (column 3, lines 60-65). With regard to claims 155-157, Fels et al. disclose a yarn comprising 40% aromatic fiber (column 8, lines 51-52). With regard to claims 158-161, although Fels et al. do not disclose fiber bundles to comprise at least 85% high-strength fiber, it would have been obvious to a person having ordinary skill in the art to modify the fiber bundles to include at least 85% high-strength fiber in order to create a fabric with increased strength. With regard to claim 164, Fels et al. does not disclose the number of fibers present in the bundle, but do teach that there are no limits on the filaments and yarn titers (column 3, line 47). The presence of 60 to 100 fibers in a fiber bundle would depend on the individual filament sizes and the desired thickness of the overall fiber bundle. It would have been obvious to a person having ordinary skill in the art to modify the fiber bundle of Fels et al. to contain 60 to 100 fibers in order to optimize the fiber bundle to it's desired thickness and desired individual filament size. With regard to claims 165, and 177-190, selection of size and denier of individual filaments and fiber bundle would be obvious modification to a person having ordinary skill in the art, depending on the desired

characteristics of the fabric to be made with the fiber bundles, especially since Fels et al. teach that there are no limits on the filaments and yarn titers (column 3, line 47).

With regard to claims 166 and 194, Fels et al. do not disclose a twist multiplier for the fiber bundles. If not already inherent to the fibers of Fels et al., it would have been obvious to one having ordinary skill in the art to create the fiber bundle of Fels et al. with a twist multiplier of at least 2.7 in order to create a sturdy fiber bundle with less chance of unraveling, since it has been held discovering an optimum value of a result effective variable involves only routine skill in the art. With regard to claim 191, spun staple fibers can form the sheath (column 3, line 55).

11. Claims 138-141, 147-191, and 194-198 are rejected under 35 U.S.C. 103(a) as being unpatentable over Opitz (European Patent No. 962,562) in view of Howland.

Opitz teaches a yarn for use in protective clothing where the core is high strength fiber and the sheath is high abrasion resistant dyeable fiber (Abstract). The core may be made from aramid fibers, polyamide fibers, or polyethylene (paragraph 15), and would have a strength of up to 27 cN/dtex (Table 1), which equals approximately 30.5 grams/denier. Opitz does not disclose the round packed cover factor of the fabric, but does state that a high-density weave is most desirable (column 7, lines 38-46).

Howland teaches densely woven fabrics useful in the manufacture of protective clothing (abstract). Howland does not disclose a "round packed cover factor" of 75% on the fill yarn and 26% on the warp yarn. However, "round packed cover factor" is only an alternative method for expressing the cover of a fabric. Since Howland already disclose densely woven fabrics, with a cover factor of up to 140% (column 4, line 59), the

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Examiner will assume that this cover value is in line with the "round packed cover factor" that the Applicant now claims. If not, it would have been obvious to a person having ordinary skill in the art to provide a fabric with the "round packed cover factor" that is claimed in claims 138-140, since doing so would simply be optimizing the density of the weave to provide a fabric with a desired penetration resistance. With regard to claim 148, Opitz teaches using para-aramid fibers for the core (paragraph 15). With regard to claims 149, 163, and 172, Opitz does not disclose that two different fiber types having high strength need to be present in the fiber bundle. It would have been obvious to one having ordinary skill in the art to provide two different high-strength fibers in the fiber bundles of Opitz in order to create a fiber bundle with enhanced strength and diverse properties. With regard to claims 150-151, Opitz teaches the sheath part of the fiber to comprise polyamide, polyester, or cotton. With regard to claims 155-161, although Opitz does not disclose fiber bundles to comprise at least 85% high-strength fiber, it would have been obvious to a person having ordinary skill in the art to modify the fiber bundles to include at least 85% high-strength fiber in order to create a fabric with increased strength, as a matter of optimization for a desired strength characteristic. With regard to claim 164, Opitz does not disclose the number of fibers present in the bundle. The presence of 60 to 100 fibers in a fiber bundle would depend on the individual filament sizes and the desired thickness of the overall fiber bundle. It would have been obvious to a person having ordinary skill in the art to modify the fiber bundle of Opitz to contain 60 to 100 fibers in order to optimize the fiber bundle to its desired thickness and desired individual filament size. With regard to claims 165, and 177-190,

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selection of size and denier of individual filaments and fiber bundle would be obvious modification to a person having ordinary skill in the art, depending on the desired characteristics of the fabric to be made with the fiber bundles. With regard to claims 166 and 194, Opitz do not disclose a twist multiplier for the fiber bundles. If not already inherent to the fibers of Opitz, it would have been obvious to one having ordinary skill in the art to create the fiber bundle of Opitz with a twist multiplier of at least 2.7 in order to create a sturdy fiber bundle with less chance of unraveling, since it has been held discovering an optimum value of a result effective variable involves only routine skill in the art. With regard to claims 167-168 and 197-198, the yarn is woven into protective clothing (paragraph 1). With regard to claim 191, Opitz discloses the sheath can be spun staple fibers (paragraph 39).

12. Claims 142-146 are rejected under 35 U.S.C. 103(a) as being unpatentable over Opitz or Fels et al. in view of Howland and further in view of Toon (U.S. Patent No. 5,248,548).

None of Opitz, Fels et al., or Howland disclose plying two fiber bundles where one fiber bundle is made of high strength yarn. Toon teaches high strength metallic yarns plied with non-metallic yarns and twisted are common in the art of making protective clothing (column 5, lines 34-41). It would have been obvious to one having ordinary skill in the art to ply high-strength fiber bundles with low-strength fiber bundles, since such a procedure is commonly known and practiced in the art of protective clothing.

13. Claims 192 and 193 rejected under 35 U.S.C. 103(a) as being unpatentable over Opitz or Fels et al. in view of Howland and further in view of Prickett (U.S. Patent No. 5,853,885).

None of Opitz, Fels et al., or Howland disclose using a Cotton System or a Worsted System. Prickett discloses using both the Cotton System (column 2, line 65) and the Worsted System (column 4, line 37) for spinning fibers in the manufacture of protective clothing. It would have been obvious to one having ordinary skill in the art to spin the fiber bundles of Opitz or Fels et al. using the Cotton System or the Worsted System as a matter of obvious choice in production method, since both Systems are held to be known and common in the art.

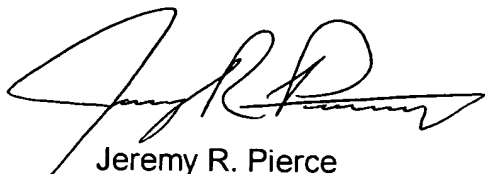
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy R. Pierce whose telephone number is (703) 605-4243. The examiner can normally be reached on Monday-Thursday 7-4:30 and alternate Fridays 7-4.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (703) 308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Jeremy R. Pierce
Examiner
Art Unit 1771
August 12, 2002



ELIZABETH M. COLE
PRIMARY EXAMINER